



## Boris Heifets

Assistant Professor of Anesthesiology, Perioperative and Pain Medicine (Adult MSD)  
at the Stanford University Medical Center

### CLINICAL OFFICES

- **Anesthesia**

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### Bio

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#### BIO

Dr. Boris Heifets, MD, PhD, is a board certified anesthesiologist who specializes in providing anesthesia for neurological surgery. He has practiced at Stanford since 2010.

After completing residency training at Stanford, Dr. Heifets completed fellowship training in neuroanesthesiology, also at Stanford. In addition to treating patients, Dr. Heifets also spends a significant amount of time in the lab, where he is investigating the ways in which psychiatric therapies change the function of neural circuits and synapses in the brain.

Dr. Heifets has a special interest in neural stimulation-based treatments for psychiatric and neurological disorders.

#### CLINICAL FOCUS

- Neuroanesthesia
- Anesthesia

#### ACADEMIC APPOINTMENTS

- Assistant Professor - Med Center Line, Anesthesiology, Perioperative and Pain Medicine
- Member, Wu Tsai Neurosciences Institute

#### HONORS AND AWARDS

- K08 Mentored Clinical Scientist Research Career Development Award, National Institute of Mental Health (2017-2021)
- Mentored Research Training Grant - Basic Science, Foundation for Anesthesia Education and Research (2013-2015)
- Outstanding Contributions to Anesthesia Research, Department of Anesthesiology, Pain & Perioperative Medicine (2013)
- Internal Grant Program Award, Department of Anesthesiology, Pain & Perioperative Medicine (2012)

## PROFESSIONAL EDUCATION

- Fellowship: Stanford University Anesthesiology Fellowships (2016) CA
- Residency: Stanford University Anesthesiology Residency (2013) CA
- Internship: Memorial Sloan Kettering Cancer Center Transitional Year Training (2010) NY
- Medical Education: Albert Einstein College of Medicine Office of the Registrar (2009) NY
- Board Certification: Anesthesia, American Board of Anesthesiology (2014)
- Fellowship, Stanford Hospital & Clinics , Research (2013)
- PhD, Albert Einstein College of Medicine , Neuroscience (2009)
- BS, Yale University , Psychobiology/Neuroscience (1999)

## Research & Scholarship

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### CURRENT RESEARCH AND SCHOLARLY INTERESTS

Harnessing synaptic plasticity to treat neuropsychiatric disease

### CLINICAL TRIALS

- Intraoperative Ketamine Versus Saline in Depressed Patients Undergoing Anesthesia for Non-cardiac Surgery, Recruiting

## Teaching

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### GRADUATE AND FELLOWSHIP PROGRAM AFFILIATIONS

- Anesthesia (Fellowship Program)
- Psychiatry and Behavioral Science (Fellowship Program)

## Publications

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### PUBLICATIONS

- **A newly developed anesthetic based on a unique chemical core.** *Proceedings of the National Academy of Sciences of the United States of America* Cayla, N. S., Dagne, B. A., Wu, Y., Lu, Y., Rodriguez, L., Davies, D. L., Gross, E. R., Heifets, B. D., Davies, M. F., MacIver, M. B., Bertaccini, E. J. 2019
- **Disruptive Psychopharmacology.** *JAMA psychiatry* Heifets, B. D., Malenka, R. C. 2019
- **Rigorous Trial Design Is Essential to Understand the Role of Opioid Receptors in Ketamine's Antidepressant Effect** *JAMA PSYCHIATRY* Heifets, B. D., Williams, N. R., Bentzley, B. S., Schatzberg, A. F. 2019; 76 (6): 657–58
- **Attenuation of Anti-Suicidal Effects of Ketamine by Opioid Receptor Antagonism** Williams, N., Heifets, B., Bentzley, B., Blasey, C., Sudheimer, K., Lyons, D., Schatzberg, A. ELSEVIER SCIENCE INC.2019: S113
- **Rigorous Trial Design Is Essential to Understand the Role of Opioid Receptors in Ketamine's Antidepressant Effect.** *JAMA psychiatry* Heifets, B. D., Williams, N. R., Bentzley, B. S., Schatzberg, A. F. 2019
- **Rigorous Translational Models Are Key to Studying Ketamine's Antidepressant Mechanism: Response to Wang and Kaplin** *AMERICAN JOURNAL OF PSYCHIATRY* Heifets, B. D., Williams, N. R., Blasey, C., Sudheimer, K., Rodriguez, C. I., Schatzberg, A. F. 2019; 176 (5): 412

- **Rigorous Translational Models Are Key to Studying Ketamine's Antidepressant Mechanism: Response to Wang and Kaplin.** *The American journal of psychiatry*  
Heifets, B. D., Williams, N. R., Blasey, C., Sudheimer, K., Rodriguez, C. I., Schatzberg, A. F.  
2019; 176 (5): 412
- **Interpreting Ketamine's Opioid Receptor Dependent Effect: Response to Sanacora** *AMERICAN JOURNAL OF PSYCHIATRY*  
Heifets, B. D., Williams, N. R., Blasey, C., Sudheimer, K., Rodriguez, C. I., Schatzberg, A. F.  
2019; 176 (3): 249–50
- **Target Population, Dose, and Timing Considerations for Understanding Naltrexone's Subjective Effect: Response to Amiaz.** *The American journal of psychiatry*  
Heifets, B. D., Williams, N. R., Blasey, C., Sudheimer, K., Rodriguez, C. I., Schatzberg, A. F.  
2019; 176 (3): 251–52
- **Interpreting Ketamine's Opioid Receptor Dependent Effect: Response to Sanacora.** *The American journal of psychiatry*  
Heifets, B. D., Williams, N. R., Blasey, C., Sudheimer, K., Rodriguez, C. I., Schatzberg, A. F.  
2019; 176 (3): 249–50
- **Target Population, Dose, and Timing Considerations for Understanding Naltrexone's Subjective Effect: Response to Amiaz** *AMERICAN JOURNAL OF PSYCHIATRY*  
Heifets, B. D., Williams, N. R., Blasey, C., Sudheimer, K., Rodriguez, C. I., Schatzberg, A. F.  
2019; 176 (3): 251–52
- **Distinct neural mechanisms for the prosocial and rewarding properties of MDMA.** *Science translational medicine*  
Heifets, B. D., Salgado, J. S., Taylor, M. D., Hoerbel, P., Cardozo Pinto, D. F., Steinberg, E. E., Walsh, J. J., Sze, J. Y., Malenka, R. C.  
2019; 11 (522)
- **Attenuation of antidepressant and antisuicidal effects of ketamine by opioid receptor antagonism.** *Molecular psychiatry*  
Williams, N. R., Heifets, B. D., Bentzley, B. S., Blasey, C., Sudheimer, K. D., Hawkins, J., Lyons, D. M., Schatzberg, A. F.  
2019
- **Attenuation of Antidepressant Effects of Ketamine by Opioid Receptor Antagonism**  
Williams, N. R., Heifets, B. D., Blasey, C., Sudheimer, K., Pannu, J., Pankow, H., Hawkins, J., Birnbaum, J., Lyons, D. M., Rodriguez, C. I., Schatzberg, A. F.  
AMER PSYCHIATRIC PUBLISHING, INC.2018: 1205–15
- **Attenuation of Antidepressant Effects of Ketamine by Opioid Receptor Antagonism.** *The American journal of psychiatry*  
Williams, N. R., Heifets, B. D., Blasey, C., Sudheimer, K., Pannu, J., Pankow, H., Hawkins, J., Birnbaum, J., Lyons, D. M., Rodriguez, C. I., Schatzberg, A. F.  
2018: appiajp201818020138
- **5-HT release in nucleus accumbens rescues social deficits in mouse autism model.** *Nature*  
Walsh, J. J., Christoffel, D. J., Heifets, B. D., Ben-Dor, G. A., Selimbeyoglu, A., Hung, L. W., Deisseroth, K., Malenka, R. C.  
2018
- **KETAMINE'S ANTIDEPRESSANT EFFECT IS BLOCKED BY A MU-OPIOID RECEPTOR ANTAGONIST IN HUMANS AND MICE**  
Heifets, B. D., Williams, N., Sudheimer, K., Pankow, H., Blasey, C., Lyons, D., Schatzberg, A. F.  
LIPPINCOTT WILLIAMS & WILKINS.2018: 343
- **Fluid management concepts for severe neurological illness: an overview.** *Current opinion in anaesthesiology*  
Heifets, B. D., Tanaka, P., Burbridge, M. A.  
2018
- **Case Report of an Awake Craniotomy in a Patient With Eisenmenger Syndrome.** *A&A practice*  
Heifets, B. D., Crawford, E., Jackson, E., Brodt, J., Jaffe, R. A., Burbridge, M. A.  
2018; 10 (9): 219–22
- **Native System and Cultured Cell Electrophysiology for Investigating Anesthetic Mechanisms.** *Methods in enzymology*  
Hoerbel, P., Heifets, B. D.  
2018; 602: 301–38
- **Rabies screen reveals GPe control of cocaine-triggered plasticity.** *Nature*

Beier, K. T., Kim, C. K., Hoerbel, P., Hung, L. W., Heifets, B. D., DeLoach, K. E., Mosca, T. J., Neuner, S., Deisseroth, K., Luo, L., Malenka, R. C.  
2017

- **Case Report of an Awake Craniotomy in a Patient With Eisenmenger Syndrome.** *A & A case reports*  
Heifets, B. D., Crawford, E., Jackson, E., Brodt, J., Jaffe, R. A., Burbridge, M. A.  
2017
- **BEYOND KETAMINE FOR PSYCHIATRIC DISEASE: UNRAVELING THE MURINE NEURAL MECHANISMS OF THE EMPATHOGEN MDMA, A NOVEL, RAPID-ONSET SINGLE-SHOT CLINICAL THERAPY FOR POST-TRAUMATIC STRESS DISORDER**  
Heifets, B. D., Taylor, M., Hung, L. W., Malenka, R. C.  
LIPPINCOTT WILLIAMS & WILKINS.2016
- **MDMA as a Probe and Treatment for Social Behaviors.** *Cell*  
Heifets, B. D., Malenka, R. C.  
2016; 166 (2): 269–72
- **Chronic pain. Decreased motivation during chronic pain requires long-term depression in the nucleus accumbens.** *Science*  
Schwartz, N., Temkin, P., Jurado, S., Lim, B. K., Heifets, B. D., Polepalli, J. S., Malenka, R. C.  
2014; 345 (6196): 535-542
- **HIPPOCAMPAL GABAERGIC FIELD POTENTIALS: A NOVEL HIGH THROUGHPUT SCREEN FOR GENERAL ANESTHETICS IN RAT**  
Nie, J., Sharma, B., MacIver, B., Heifets, B. D.  
LIPPINCOTT WILLIAMS & WILKINS.2014: S144
- **IMPROVING DEEP BRAIN STIMULATION THROUGH TARGETED SYNAPTIC MODIFICATION**  
Heifets, B. D., Deisseroth, K., Malenka, R., MacIver, B.  
LIPPINCOTT WILLIAMS & WILKINS.2013: 159
- **Acute Cardiovascular Toxicity of Low-Dose Intrathecal Ziconotide.** *Pain medicine (Malden, Mass.)*  
Heifets, B. D., Smith, S. M., Leong, M. S.  
2013
- **Endocannabinoid Signaling and Long-Term Synaptic Plasticity** *ANNUAL REVIEW OF PHYSIOLOGY*  
Heifets, B. D., Castillo, P. E.  
2009; 71: 283-306
- **Interneuron activity controls endocannabinoid-mediated presynaptic plasticity through calcineurin** *PROCEEDINGS OF THE NATIONAL ACADEMY OF SCIENCES OF THE UNITED STATES OF AMERICA*  
Heifets, B. D., Chevaleyre, V., Castillo, P. E.  
2008; 105 (29): 10250-10255
- **Endocannabinoid-mediated long-term plasticity requires cAMP/PKA signaling and RIM1 alpha** *NEURON*  
Chevaleyre, V., Heifets, B. D., Kaeser, P. S., Sudhof, T. C., Purpura, D. P., Castillo, P. E.  
2007; 54 (5): 801-812
- **Regulation of regulators of G protein signaling mRNA expression in rat brain by acute and chronic electroconvulsive seizures** *JOURNAL OF NEUROCHEMISTRY*  
Gold, S. J., Heifets, B. D., Pudiak, C. M., Potts, B. W., Nestler, E. J.  
2002; 82 (4): 828-838
- **The effect of scopolamine in older rabbits tested in the 750 ms delay eyeblink classical conditioning procedure** *INTEGRATIVE PHYSIOLOGICAL AND BEHAVIORAL SCIENCE*  
Woodruff-Pak, D. S., Green, J. T., Pak, J. T., Heifets, B., Pak, M. H.  
2002; 37 (2): 103-113
- **Nefiracetam ameliorates associative learning impairment in the scopolamine-injected older rabbit.** *Medical science monitor*  
Pak, J., Green, J., Heifets, B., Pak, M., Woodruff-Pak, D.  
2002; 8 (4): BR105-12
- **Chemical analysis of ecstasy pills** *JAMA-JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION*  
Baggott, M., Heifets, B., Jones, R. T., Mendelson, J., Sferios, E., Zehnder, J.

2000; 284 (17): 2190-2190

- **Anticonvulsant efficacy of N-methyl-D-aspartate antagonists against convulsions induced by cocaine** *JOURNAL OF PHARMACOLOGY AND EXPERIMENTAL THERAPEUTICS*

Witkin, J. M., Gasior, M., Heifets, B., Tortella, F. C.

1999; 289 (2): 703-711